

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior listing of claims in this application.

1. (currently amended) An atomic layer doping apparatus comprising:

a first atomic layer doping region for depositing a first dopant species on a first substrate as an atomic monolayer, ~~said first atomic layer doping region further comprising a heater assembly provided under a susceptor;~~

a second atomic layer doping region for diffusing said first dopant species in said first substrate, ~~said second atomic layer doping region further comprising a heater assembly provided under a susceptor,~~ wherein said first and second atomic layer doping regions are chemically isolated from one another by an inert gas curtain; and

a loading assembly for moving said first substrate from said first doping region through said inert gas curtain to said second doping region, ~~thereby enabling deposition of a first atomic monolayer in said first doping region, followed by diffusion of said first atomic monolayer in said second doping region.~~

Claims 2-5 (canceled).

6. (currently amended) The doping apparatus of claim 1, wherein said loading assembly is further able to move said substrate from said second doping region back to said first doping region through said inert gas curtain.

7. (previously presented) The doping apparatus of claim 1 further comprising a plurality of said first and second atomic layer doping regions.

8. (previously presented) The doping apparatus of claim 7, wherein said plurality of said first and second doping regions are grouped in pairs of first and

second doping regions, so that at least said first substrate and a second substrate can be treated simultaneously in respective pairs of first and second doping regions.

9. (original) The doping apparatus of claim 8 further comprising a third pair of first and second atomic layer doping regions for processing a third substrate in said third pair of first and second atomic layer doping regions simultaneously with processing of said first and second substrates.

10. (currently amended) The doping apparatus of claim 7, wherein said loading assembly is located at the center [[of]] containing said doping regions.

11. (original) The doping apparatus of claim 1 further comprising at least one third atomic layer doping region.

12. (original) The doping apparatus of claim 11, wherein said first, second, and third doping regions are adjacent to one another and chemically isolated.

13. (currently amended) The doping apparatus of claim 12, wherein said first, second, and third doping regions are chemically isolated from one another by inert gas curtains.

Claims 14-15 (cancelled).

16. (currently amended) The doping apparatus of claim 11, wherein said loading assembly is further able to move sequentially said first substrate among said first doping region, said second doping region, and said third doping region through said inert gas curtains.

17. (currently amended) The doping apparatus of claim 16, wherein said loading assembly is further able to move sequentially another substrate among said first doping region, said second doping region, and said third doping region through said inert gas curtains.

Claims 18-45 cancelled.

46. (currently amended) An atomic layer doping apparatus comprising:

a first atomic layer doping region for depositing a first dopant species on a first substrate as a monolayer;

a second atomic layer doping region for diffusing said first dopant species in said first substrate, said first and second doping regions being chemically isolated from one another by an inert gas curtain, wherein said inert gas curtain is provided at a higher pressure than an atmosphere containing said first dopant species; and,

a loading assembly for moving said first substrate from said first doping region to said second doping region through said inert gas curtain, thereby enabling deposition of a first atomic monolayer in said first doping region, followed by diffusion of said first atomic monolayer in said second doping region.

47. (currently amended) An atomic layer doping apparatus comprising:

a first atomic layer doping region for depositing a first dopant gas species on a first substrate as a monolayer, said first dopant gas species exhausted through a first gas port;

a second atomic layer doping region for diffusing said first dopant gas species in said first substrate with a non-reactive gas species, said first and second doping regions being chemically isolated from one another by an inert gas curtain provided at a higher

pressure than an atmosphere containing said first dopant gas species, wherein said non-reactive gas species is exhausted through a second gas port; and

a loading assembly for moving said first substrate from said first doping region to said second doping region through said inert gas curtain, thereby enabling deposition of a first atomic monolayer in said first doping region, followed by diffusion of said first atomic monolayer in said second doping region.

48. (currently amended) An atomic layer doping apparatus comprising:

a first atomic layer doping region comprising a susceptor and a heater assembly for depositing a first dopant species on a first substrate as an atomic monolayer;

a second atomic layer doping region comprising a susceptor and a heater assembly for diffusing said first dopant species in said first substrate, wherein said first and second atomic layer doping regions are isolated from one another by a physical barrier having a closeable opening; and

a loading assembly for moving said first substrate from said first doping region to said second doping region through said closeable opening of said physical barrier, thereby enabling deposition of a first atomic monolayer in said first doping region, followed by diffusion of said first atomic monolayer in said second doping region.